WHAT IS CLAIMED IS:

1. Active material for a positive electrode used in lithium secondary batteries of Formula 1 below, a surface of the active material being coated with metal oxide,

[Formula 1]

$LiA_{1-x-y}B_xC_yO_2$

where $0 < x \leq 0.3$, $0 \leq y \leq 0.01$, and

A is an element selected from the group consisting of Ni, Co and Mn;

B is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al; and

C is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al.

2. The active material of claim 1 wherein the metal oxide is an element selected from the group consisting of Mg, Al, Co, K, Na and Ca.

3. The active material of claim 1 wherein the positive electrode active material is formed by minute particles in an agglomerated state such that a particle size of the active material is between 0.1 and 100 μm.

4. The active material of claim 1 wherein the positive electrode active material is $LiNi_{1-x}Co_xO_2$, where $0 < x \leq 0.3$.

5. The active material of claim 1 wherein the active material comprises at least one of the A, B and C metals, and a Mg composite metal oxide, and a surface of the active material is processed with minute particles of 5-15nm in size.

6. The active material of claim 1 wherein the active material comprises at least one of the A, B and C metals, and a double layer structure of a Al composite metal oxide processed on a surface of the active material.

7. A method of manufacturing an active material for a positive electrode used in lithium secondary batteries of Formula 1 below, the method comprising the steps of:

producing a crystalline powder or a semi-crystalline powder of Formula 1;

coating the crystalline powder or the semi-crystalline powder with metal alkoxide sol; and

heat-treating the powder coated with the metal alkoxide sol,

[Formula 1]

$LiA_{1-x-y}B_xC_yO_2$

where $0 < x \leq 0.3$, $0 \leq y \leq 0.01$, and

A is an element selected from the group consisting of Ni, Co and Mn;

B is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al; and

C is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al.

8. The method of claim 7 wherein the metal alkoxide is selected from the group consisting of Mg, Al, Co, K, Na and Ca.

9. The method of claim 8 wherein the metal alkoxide is Mg-alkoxide.

10. The method of claim 7 wherein a concentration of metal in the metal

alkoxide 1-10% by weight of alcohol.

11. The method of claim 7 wherein the heat-treating process is performed at a temperature between 400 and 900°C.

12. The method of claim 7 wherein in the step of manufacturing the crystalline or semi-crystalline powder further comprises the steps of:

mixing an A metal salt, a B metal salt and a C metal salt with a solvent to form a $A_{1-x-y}B_xC_y(OH)_2$ precursor material;

adding then mixing lithium salt and a solvent to the precursor material to form a mixture; and

heat-treating the mixture.

13. The method of claim 12 wherein in the case where the powder is a crystalline powder, the heat-treating step includes a first heat-treating process conducted at a temperature between 400 and 550°C and a second heat-treating process conducted at a temperature between 700 and 900°C.

14. The method of claim 13 wherein in the case where the powder is a semi-crystalline powder, the heat-treating step is conducted at a temperature between 400 and 600°C.

15. The method of claim 7 wherein the positive electrode active material is $LiNi_{1-x}Co_xO_2$, where $0 < x \leq 0.3$.

16. A lithium secondary battery using active material for a positive electrode of Formula 1 below, a surface of the active material being coated with metal oxide,

[Formula 1]

$LiA_{1-x-y}B_xC_yO_2$

where $0 < x \leq 0.3$, $0 \leq y \leq 0.01$, and

A is an element selected from the group consisting of Ni, Co and Mn;

B is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al; and

C is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al.